

## NOTES:

1. INSTALL AVIATION TAPE EVERY 18 in OR AS NECESSARY ON ALL TUBE ASSEMBLIES

SHEET	REV	ECO	DATE	DESCRIPTION	BY	CHK	APR
1-9	A		01/03/97	MODIFIED -4,-5,-6,-8,-11 ASSY	REB	REB	REB
1,3	B		02/21/97	ES39500-1 REMOVED FROM -7 ASSY	REB	REB	REB
1,6-9	C		06/17/97	ES39501 WAS S-5018, MOD'F ANGLES ON -5 ASSY, REMOVED S-5018 ON -13	REB	REB	REB
1,3	D		12/22/97	CHANGE LENGTH OF -7 TUBE ASSY. TO 4.25'	REB	REB	REB
1,10	E		12/10/99	ADDED SHT 10 & 11, ASSY. -14,-15,-16	MR	LS	MR
1,10,11	F		08/19/05	17.75 WAS 19.00, -14 TUBE ASSY. ADDED -17, -18 TUBE ASSY'S	REB	LS	REB
1-11	G		07/05/07	ADDED BEND TABLES TO -3/-4/-5/-6/-9/-10/-14/-16. ADDED FIRESLEEVE CALLOUTS TO -4/-5/-16. BEND RADII WAS 1.5' ON -6/-9/-10/-11/-12. -3 ASSY: 15.62 WAS 15.75 (TO BEND 6), ADDED DIMS 10.96, 1.26. -4 ASSY: DIM 3.02 WAS 2.77, REMOVED 3" BEND, 169" WAS 166". -5 ASSY: ASSIGNED BENDS 1,2,3. ADDED TUBE ROTATION VIEW. -6/-11 ASSY'S: LENGTH DIMS WERE TO END OF BENDS. -9 ASSY: ADDED DIMS 11.38, 2.58, 1.28, & 10.76. -10 ASSY: ADDED DIMS 13.56(REF), 6.54, 6.02, 12.62(REF) WAS 12.13(REF), 1.77 WAS 1.25. -12 ASSY: 1.34 WAS 1.19, 10.40 WAS 10.25. -14 ASSY: ADDED DIMS 23.87, 4.57, 2.91, 49.86(REF); 17.62 WAS 17.75 (TO 6) -16 ASSY: 2.69 WAS 2.77; 4.71(REF) WAS 4.75(REF). ADDED SEGMENT LENGTHS, FRACTIONAL (ft. & Inches) TUBE LENGTHS. ADDED 304SS & 5052-0 TO BOM.	REB	LS	REB
1,9		1	05/19/08	DEFINED AVIATION TAPE NOTE AS NOTE 1. CRCT'N BH-9 WAS BH-7 AND REPLACED FERRULE, NUT, & SLEEVE ON -5 FIGURE ONLY.	REB	CEH	REB
1,10		2	12/01/10	REMOVED ES39500-1 FERRULE FROM ITEM -15 ASSY	REB	LS	REB
1, 6-8	H		05/26/20	P/N ES39501-1 UPDATED TO ES39500-2. 32" DIM ON -9 ASSY NOW 30.5"	DT	LS	ZA
1, 12	J		03/23/21	ADDED SHEET 12 AND ASSEMBLY S-5017-19. UPDATED FIRE SLEEVE LENGTHS ON -7, -11, -10, -12, AND -14.	DT	LS	ZA
ALL	K		02/21/22	MOVED BOM TO NEW SHEET 2. INCREMENTED SUBSEQUENT PAGES. ADDED ALTERNATE SLEEVE AND NUT P/NS.	DT	ZA	DT

BREAK ALL SHARP EDGES

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PROTO

N/C

Paravion® Inc. Technology		TITLE TUBE ASSEMBLY		DRAWING NO. S-5017	
DIMENSIONS IN INCHES		DRAWN BY RHSM	APRVD BY REB	CHK'D BY LS	DATE 11/26/96
TOLERANCES EXCEPT WHERE NOTED:		REV K		ECO	
.X = ± .1 .XX = ± .05 .XXX = ± .010		DO NOT SCALE DRAWING		SHEET 1 OF 13	
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			10.4	3.75								4.25	16.2	45.4	15.8				5052-0	TUBE: 1/2 X .035W SEAMLESS (QTY IN INCHES)	WW-T-700/4
						4.00	12.3	20.6	16.0	30.9	13.9								5052-0	TUBE: 3/8 X .035W SEAMLESS (QTY IN INCHES)	WW-T-700/4
																		14.7	304SS	TUBE: 5/8 X .035W SEAMLESS (QTY IN INCHES)	ASTM-A269-92
52.55	6.33	16.2			50.9											35.2	14.7		304SS	TUBE: 1/2 X .035W SEAMLESS (QTY IN INCHES)	ASTM-A269-92
16		4	3	3	16	4	4	4	4	8	4	4	4	16	4	8	4	4	ES82100-1	AVIATION TAPE (QTY IN INCHES)	(SEE NOTE 1)
53.5		16	9	3.75	49.5							3.25	15	45	14	35	14.5	14.5	BH-9	FIRE SLEEVE (QTY IN INCHES)	
						4	11.5	20	15.25	30.5	13.5								BH-7	FIRE SLEEVE (QTY IN INCHES)	
																		2	AN819-10J	SLEEVE (ALT: MS20819-10J, AS5176J10)	
																		2	AN818-10J	NUT (ALT: AS5175J10)	
2	2	2			2											2	2		AN819-8J	SLEEVE (ALT: MS20819-8J, AS5176J08)	
2	2	2			2											2	2		AN818-8J	NUT (ALT: AS5175J08)	
			2	2								2	2	2	2				AN819-8D	SLEEVE (ALT: MS20819-8D, AS3220D08)	
			2	2								2	2	2	2				AN818-8D	NUT (AS5175W08, AN818-8W)	
					2	2	2	2	2	2	2								AN819-6D	SLEEVE (ALT: MS20819-6D, AS3220D06)	
					2	2	2	2	2	2	2								AN818-6D	NUT (ALT: AS5175W06, AN818-6W)	
						2	2	2	2	2	2								ES39500-2	FERRULE	
2		2	2		2								2	2	2	2	2	2	ES39500-1	FERRULE	
-19	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	PART NO		DESCRIPTION
ASSY	ASSY	ASSY	ASSY	ASSY	ASSY	ASSY	ASSY	ASSY	ASSY	ASSY	ASSY	ASSY	ASSY	ASSY	ASSY	ASSY	ASSY	ASSY	SPEC.		
QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.			

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✓Technology

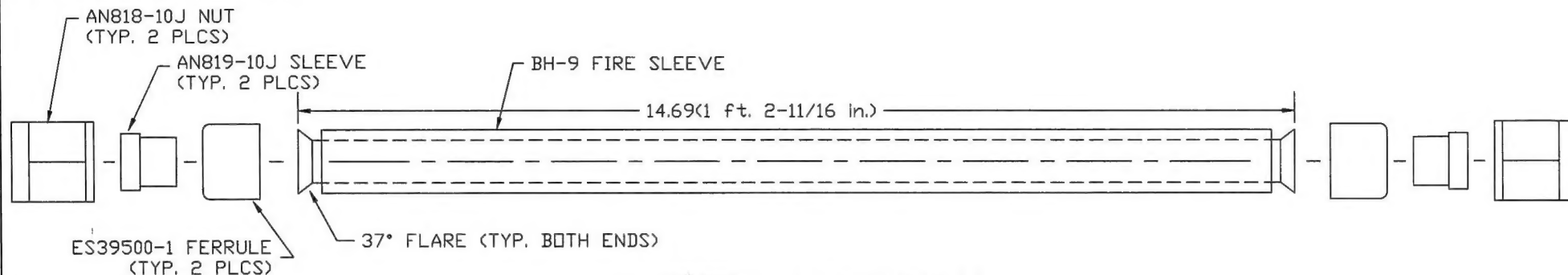
DIMENSIONS IN INCHES  
TOLERANCES EXCEPT  
WHERE NOTED:

.X = ± .1  
.XX = ± .05  
.XXX = ± .010

ANGLES = ± 1°

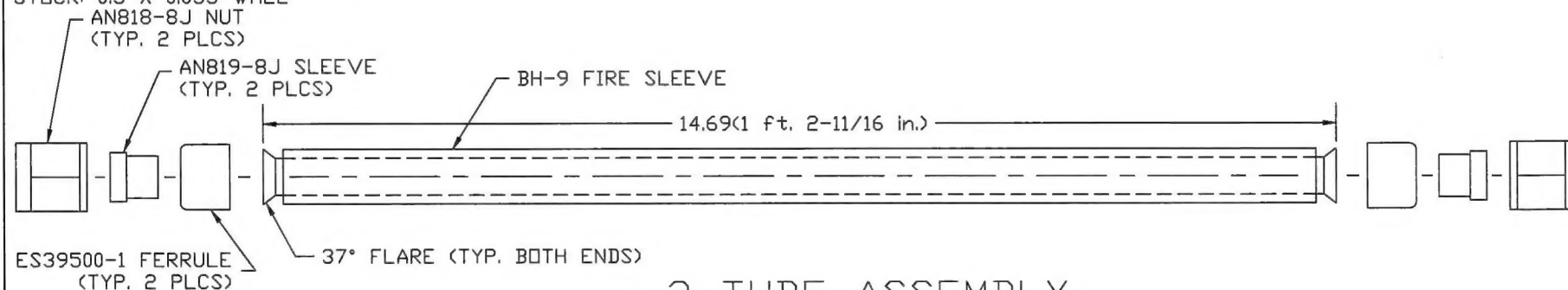
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TUBE ASSEMBLY			S-5017		
DRAWN BY	APRVD BY	CHK'D BY	DATE	REV	ECO
DT	DT	ZA	02/21/22	K	
DO NOT SCALE DRAWING					SHEET
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MATERIAL: 304 STAINLESS STEEL ASTM-A269-92  
STOCK: 0.625 X 0.035 WALL



## -1 TUBE ASSEMBLY

MATERIAL: 304 STAINLESS STEEL ASTM-A269-92  
STOCK: 0.5 X 0.035 WALL



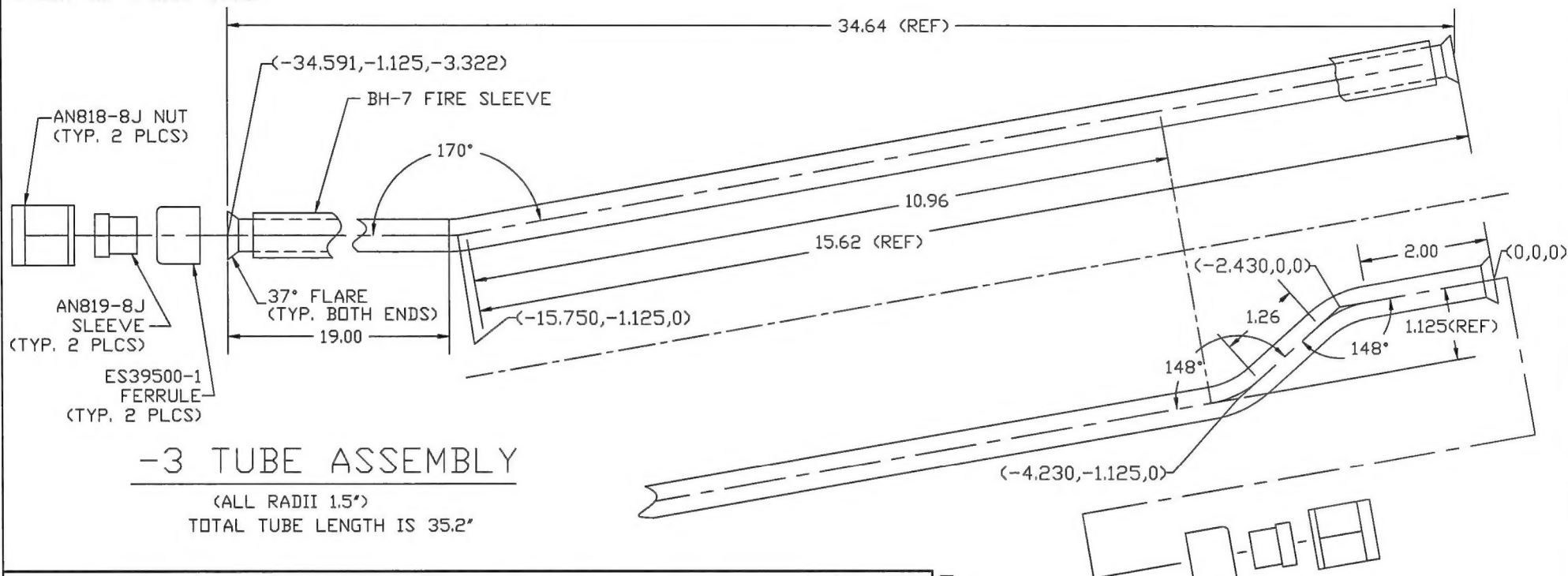
## -2 TUBE ASSEMBLY

BREAK ALL SHARP EDGES

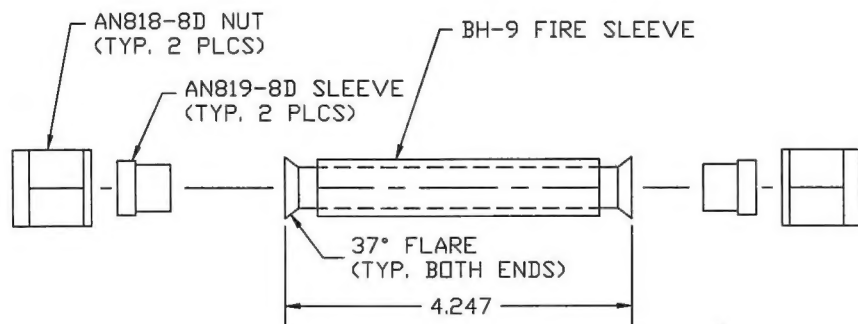
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DIMENSIONS IN INCHES TOLERANCES EXCEPT WHERE NOTED:		DRAWN BY RHSM	APRVD. BY REB	CHK'D BY REB	DATE 11/26/96
.X = ± .1 .XX = ± .05 .XXX = ± .010		DO NOT SCALE DRAWING			REV K
ANGLES = ± 1°		© 2022 PARAVION TECH., INC. PARAVION IS A TRADEMARK OF PARAVION TECHNOLOGY, INC.			SHEET 3 OF 13

PROTO
N/C

MATERIAL: 304 STAINLESS STEEL ASTM-A269-92  
STOCK: 0.5 X 0.035 WALL



MATERIAL: 5052-D WW-T-700/4  
STOCK: 0.5 X 0.035 WALL



**-7 TUBE ASSEMBLY**

BREAK ALL SHARP EDGES

Bend	Tube Length to Bend Start	Tangent Angle Setting, Deg.	Bend Angle, Deg.	Arc Length
1	2.00 (2in.)	0.0	32.0	0.84 inch
2	4.10 (4-1/8in.)	180.0	32.0	0.84
3	15.90 (1ft. 3-7/8in.)	90.0	10.0	0.26

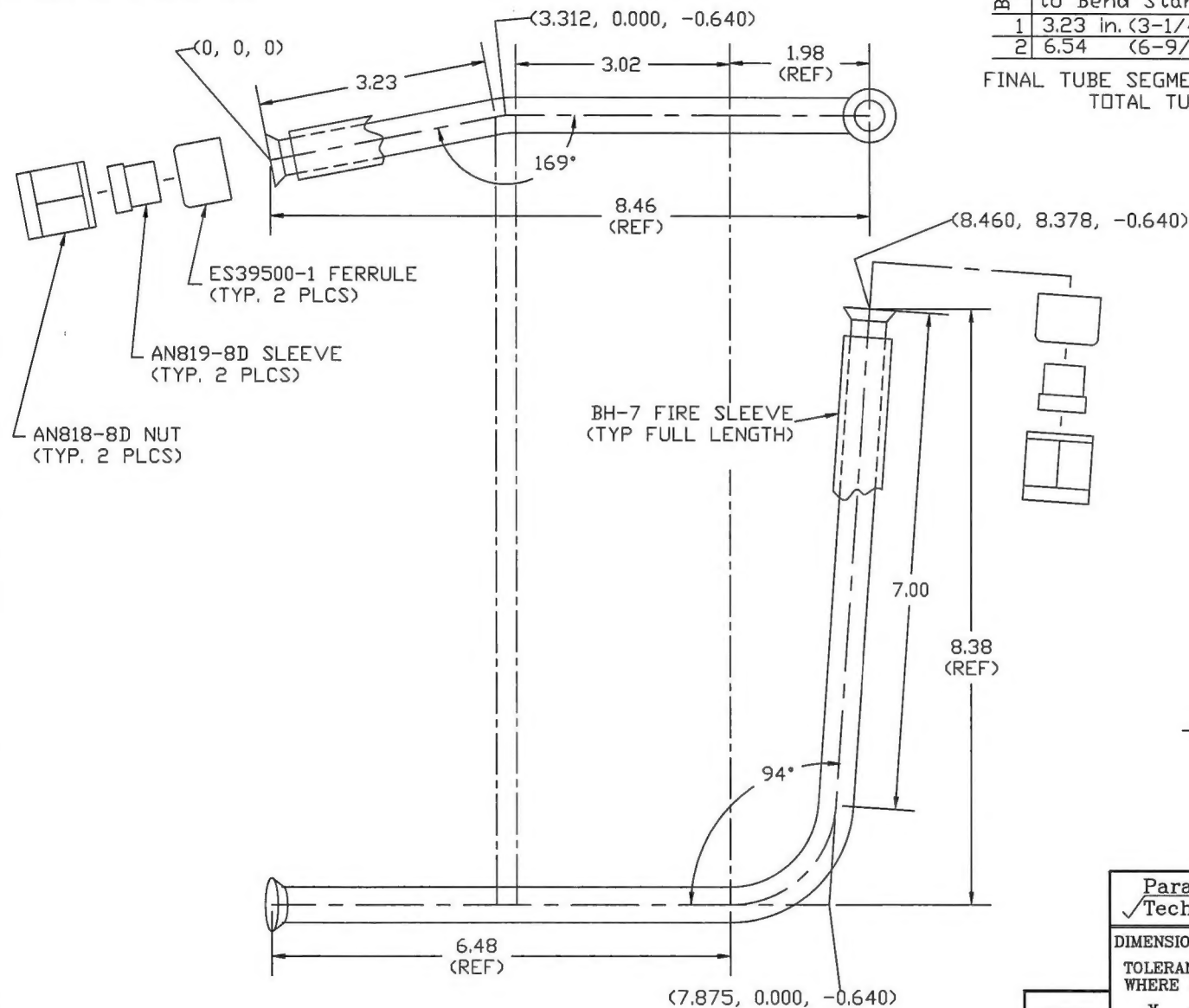
FINAL TUBE SEGMENT LENGTH = 19.00 inches (1ft. 7in.)  
TOTAL TUBE LENGTH = 35.16 inches (2ft. 11-3/16in.)

Paravion® Technology Inc.		TITLE TUBE ASSEMBLY		DRAWING NO. S-5017	
DIMENSIONS IN INCHES TOLERANCES EXCEPT WHERE NOTED:		DRAWN BY RHSM	APRVD. BY REB	CHK'D BY LS	DATE 11/26/96
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ANGLES = ± 1°		© 2022 PARAVION TECH., INC. PARAVION IS A TRADEMARK OF PARAVION TECHNOLOGY, INC.			

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N/C

MATERIAL: 5052-O WW-T-700/4  
STOCK: 0.5 X 0.035 WALL



Bend No.	Tube Length to Bend Start	Tangent Angle Setting, Deg.	Bend Angle Deg.	Bend Radius	Arc Length
1	3.23 in. (3-1/4)	0.0	10.9	1.5 in.	0.29 in.
2	6.54 (6-9/16)	90.0	86.0	1.5 in.	2.25

FINAL TUBE SEGMENT LENGTH = 7.00 inch  
TOTAL TUBE LENGTH = 15.79 inches (1 ft. 3-13/16 in.)

## -4 TUBE ASSEMBLY

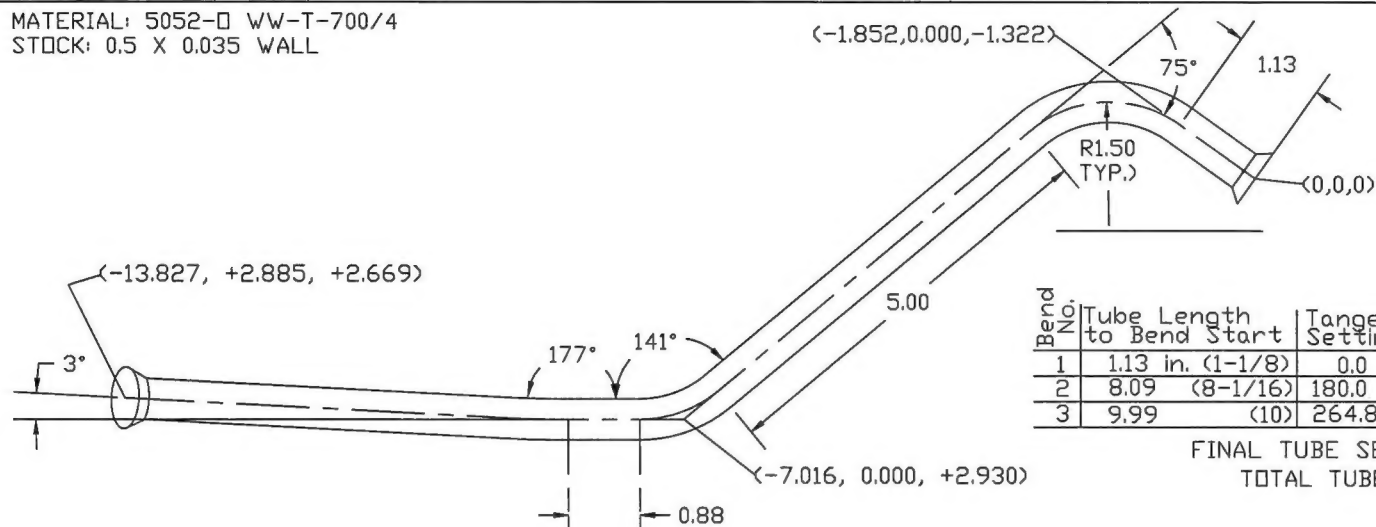
BREAK ALL SHARP EDGES

Paravion® Inc. Technology		TITLE TUBE ASSEMBLY		DRAWING NO. S-5017	
DIMENSIONS IN INCHES TOLERANCES EXCEPT WHERE NOTED:		DRAWN BY RHSM	APRVD. BY REB	CHK'D BY REB	DATE 11/26/96
PROTO		DO NOT SCALE DRAWING		REV K	ECO
N/C		© 2022 PARAVION TECH., INC. PARAVION IS A TRADEMARK OF PARAVION TECHNOLOGY, INC.		SHEET 5 OF 13	

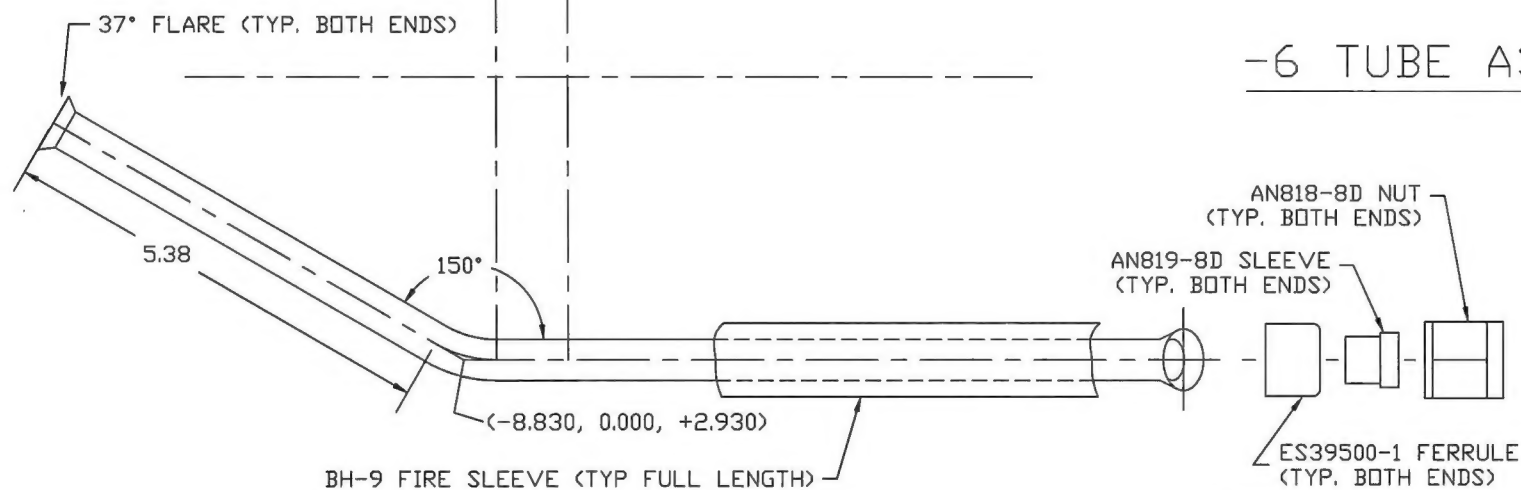
.X = ± .1  
.XX = ± .05  
.XXX = ± .010

ANGLES = ± 1°

MATERIAL: 5052-O WW-T-700/4  
STOCK: 0.5 X 0.035 WALL



## -6 TUBE ASSEMBLY

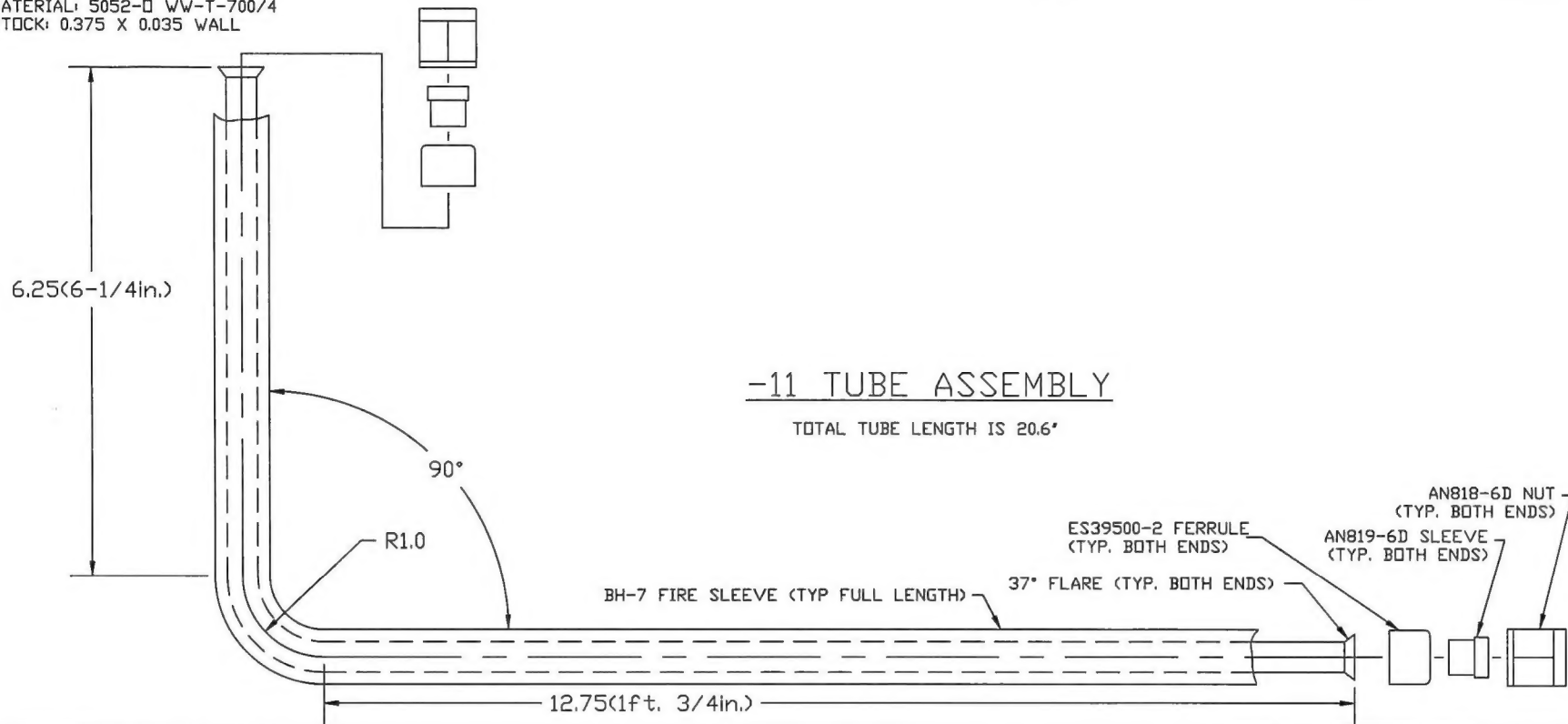


BREAK ALL SHARP EDGES

Paravion® Inc.		TITLE		DRAWING NO.	
Technology		TUBE ASSEMBLY		S-5017	
DIMENSIONS IN INCHES		DRAWN BY	APRVD. BY	CHK'D BY	DATE
TOLERANCES EXCEPT WHERE NOTED:		RHSM	REB	REB	11/26/96
.X = ± .1		DO NOT SCALE DRAWING			REV
.XX = ± .05					ECO
.XXX = ± .010					
ANGLES = ± 1°		© 2022 PARAVION TECH, INC. PARAVION IS A TRADEMARK OF PARAVION TECHNOLOGY, INC.			SHEET
					6 OF 13

PROTO
N/C

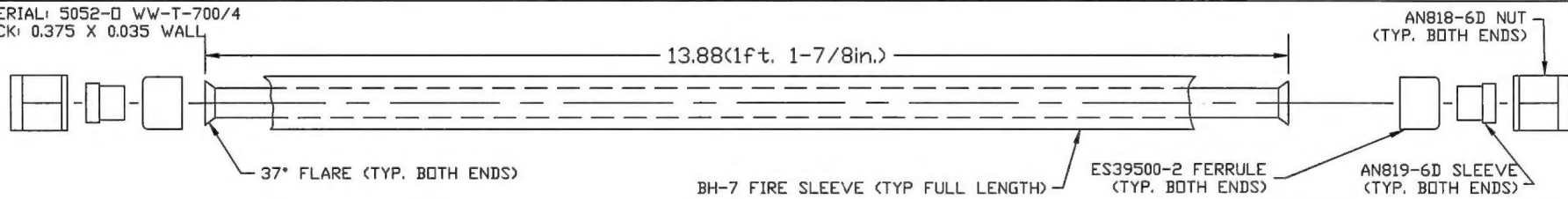
MATERIAL: 5052-O WW-T-700/4  
STOCK: 0.375 X 0.035 WALL



## -11 TUBE ASSEMBLY

TOTAL TUBE LENGTH IS 20.6'

MATERIAL: 5052-O WW-T-700/4  
STOCK: 0.375 X 0.035 WALL



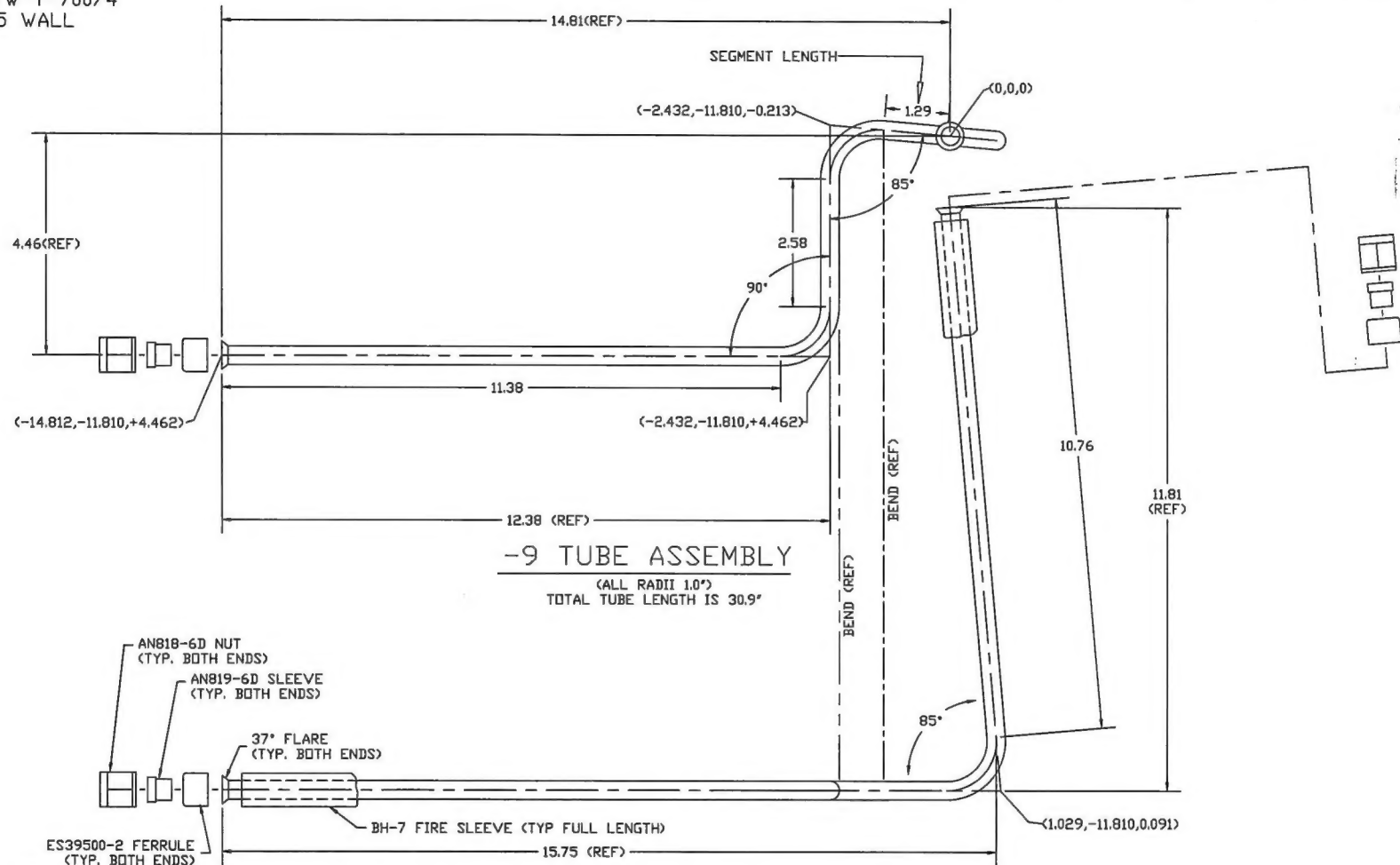
## -8 TUBE ASSEMBLY

BREAK ALL SHARP EDGES

Paravion® Technology Inc.		TITLE TUBE ASSEMBLY		DRAWING NO. S-5017	
DIMENSIONS IN INCHES TOLERANCES EXCEPT WHERE NOTED:		DRAWN BY RHSM	APRVD. BY REB	CHK'D BY LS	DATE 11/26/96
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SHEET 7 OF 13					

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MATERIAL: 5052-O WW-T-700/4  
STOCK: 0.375 X 0.035 WALL



# -9 TUBE ASSEMBLY (ALL RADII 1.0") TOTAL TUBE LENGTH IS 30.9"

Bend No.	Tube Length to Bend Start	Tangent Angle Setting, Deg.	Bend Angle, Deg.	Arc Radius	Arc Length
1	10.76 in. (10-3/4 in.)	0.0	95.0	1.00 inch	1.66 inch
2	13.71 (1ft. 1-11/16 in.)	90.0	95.0	1.00	1.66
3	17.96 (1ft. 5-15/16 in.)	270.0	90.0	1.00	1.57

FINAL TUBE SEGMENT LENGTH = 11.38 inch  
TOTAL TUBE LENGTH = 30.91 inches

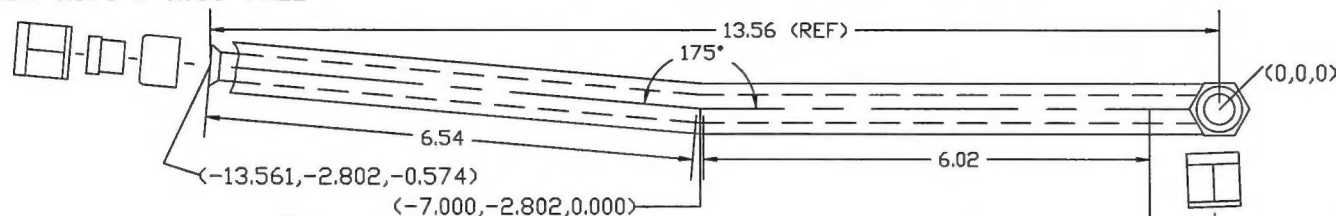
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DIMENSIONS IN INCHES		DRAWN BY		APRVD. BY	CHK'D BY	DATE
TOLERANCES EXCEPT WHERE NOTED:		RHSM		REB	LS	11/26/96
.X = ± .1		DO NOT SCALE DRAWING				REV K
.XX = ± .05						ECO
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ANGLES = ± 1°						

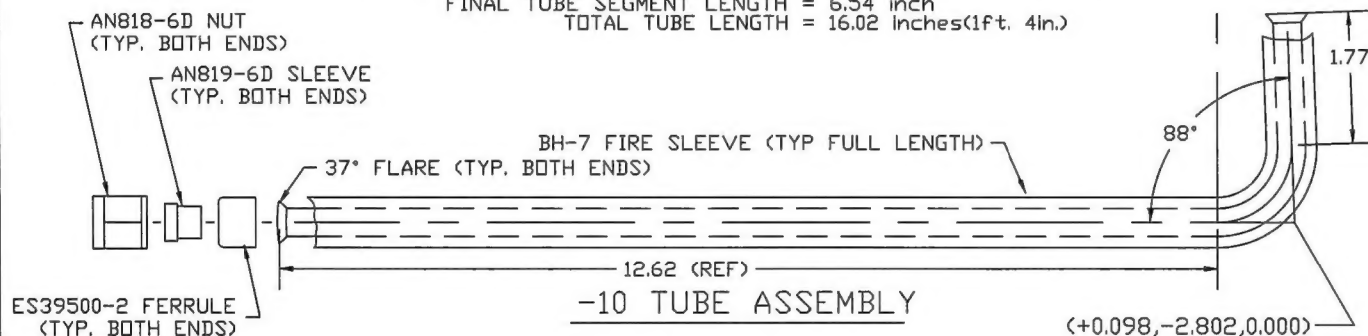
BREAK ALL SHARP EDGES

MATERIAL: 5052-0 WW-T-700/4  
STOCK: 0.375 X 0.035 WALL

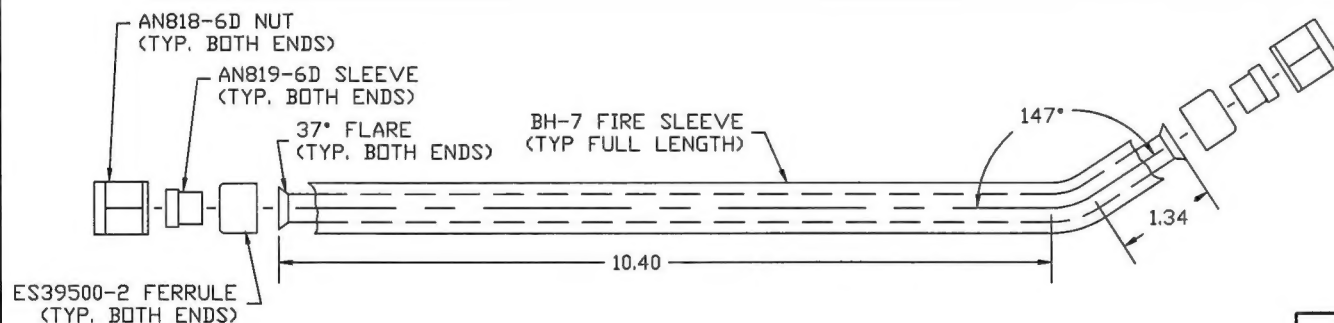


Bend No.	Tube Length to Bend Start	Tangent Angle Setting, Deg.	Bend Angle, Deg.	Arc Radius	Arc Length
1	1.77 in. (1-3/4)	0.0	92.0	1.00 inch	1.61 inch
2	9.39 (9-3/8)	270.0	5.0	1.00	0.09

FINAL TUBE SEGMENT LENGTH = 6.54 inch  
TOTAL TUBE LENGTH = 16.02 inches (1ft. 4in.)

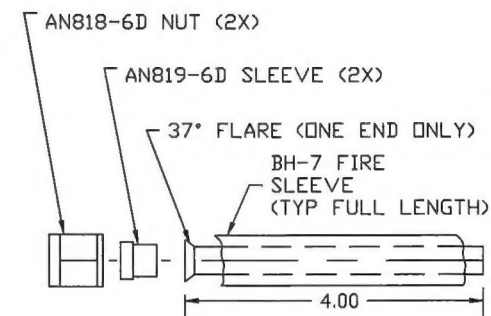


**-10 TUBE ASSEMBLY**



**-12 TUBE ASSEMBLY**

(BEND RADIUS 1.0")  
TOTAL TUBE LENGTH IS 12.3"



**-13 TUBE ASSEMBLY**

BREAK ALL SHARP EDGES

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DIMENSIONS IN INCHES		DRAWN BY	APRVD. BY	CHK'D BY	DATE	REV	ECO
TOLERANCES EXCEPT WHERE NOTED:		RHSM	REB	LS	11/26/96	K	
.X = ± .1							
.XX = ± .05							
.XXX = ± .010							
ANGLES = ± 1°		DO NOT SCALE DRAWING				SHEET	
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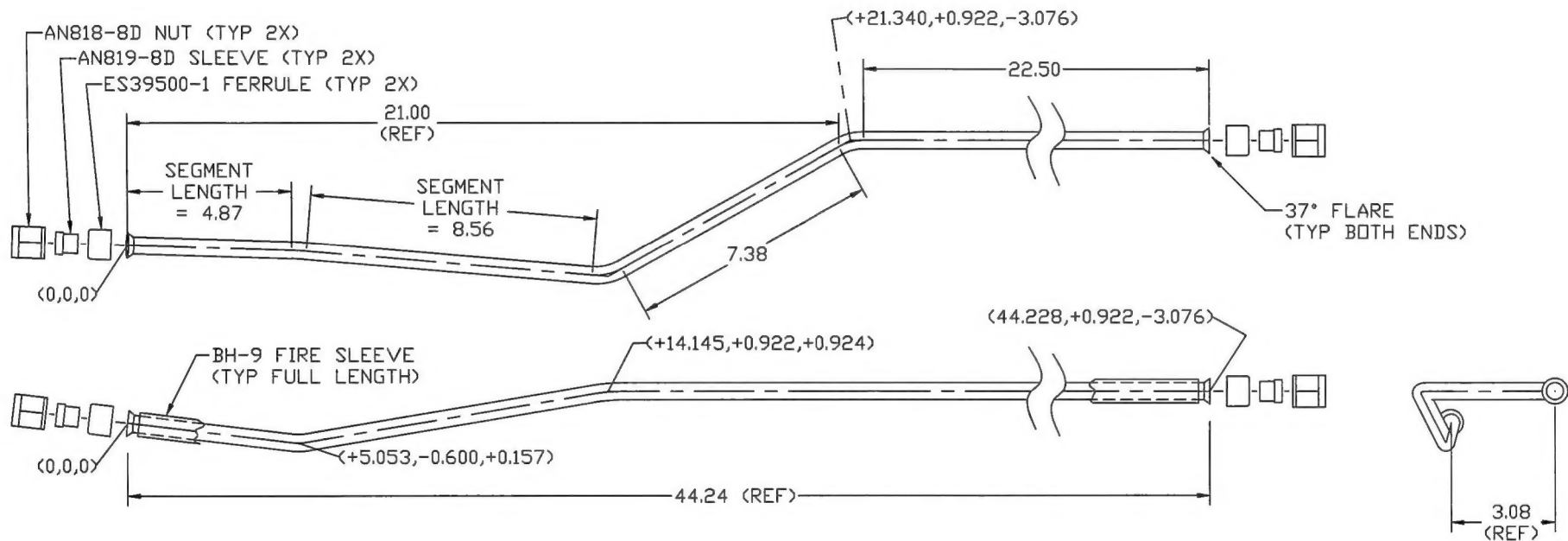
PROTO
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MATERIAL: 5052-O WW-T-700/4  
STOCK: 0.5 X 0.035 WALL

Bend No	Tube Length to Bend Start	Tangent Angle Setting, Deg.	Bend Angle, Deg.	Arc Radius	Arc Length
1	4.87 in. (4-7/8in.)	0.0	16.5	1.50 inch	0.43 inch
2	13.87 (1ft. 1-7/8in.)	114.4	35.0	1.50	0.92
3	22.15 (1ft. 10-1/8in.)	277.8	29.1	1.50	0.76

FINAL TUBE SEGMENT LENGTH = 22.50 inches (1ft. 10-1/2in.)

TOTAL TUBE LENGTH = 45.41 inches (3ft. 9-1/2in.)



## -5 TUBE ASSEMBLY

BREAK ALL SHARP EDGES

<div>Paravion® Technology Inc.</div>		TITLE TUBE ASSEMBLY			DRAWING NO. S-5017		
DIMENSIONS IN INCHES		DRAWN BY RHSM	APRVD. BY REB	CHK'D BY LS	DATE 11/26/96	REV K	ECO
TOLERANCES EXCEPT WHERE NOTED:							
PROTO	.X = ± .1						
	.XX = ± .05						
N/C	.XXX = ± .010	DO NOT SCALE DRAWING				SHEET	
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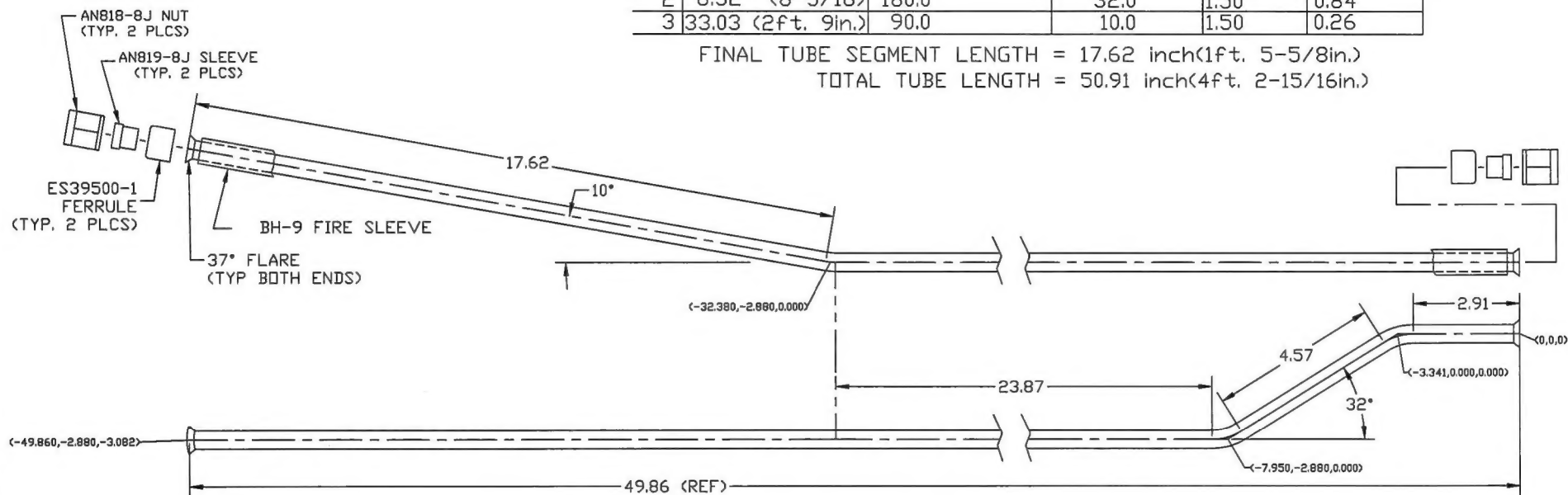
PROTO
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MATERIAL: 304 STAINLESS STEEL ASTM-A269-92  
STOCK: 0.5 X 0.035 WALL

Bend Z	Tube Length to Bend Start	Tangent Angle Setting, Deg.	Bend Angle, Deg.	Arc Radius	Arc Length
1	2.91 in(2-15/16)	0.0	32.0	1.50 inch	0.84 inch
2	8.32 (8-5/16)	180.0	32.0	1.50	0.84
3	33.03 (2ft. 9in.)	90.0	10.0	1.50	0.26

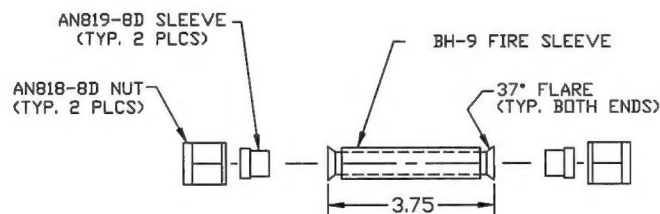
FINAL TUBE SEGMENT LENGTH = 17.62 inch(1ft. 5-5/8in.)

TOTAL TUBE LENGTH = 50.91 inch(4ft. 2-15/16in.)



-14 TUBE ASSEMBLY

MATERIAL: S052-Q WW-T-700/4  
STOCK: 0.5 X 0.035 WALL



-15 TUBE ASSEMBLY

BREAK ALL SHARP EDGES

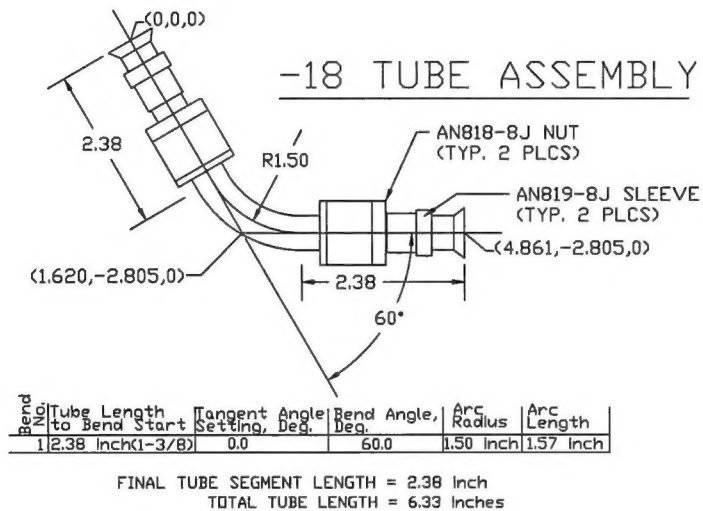
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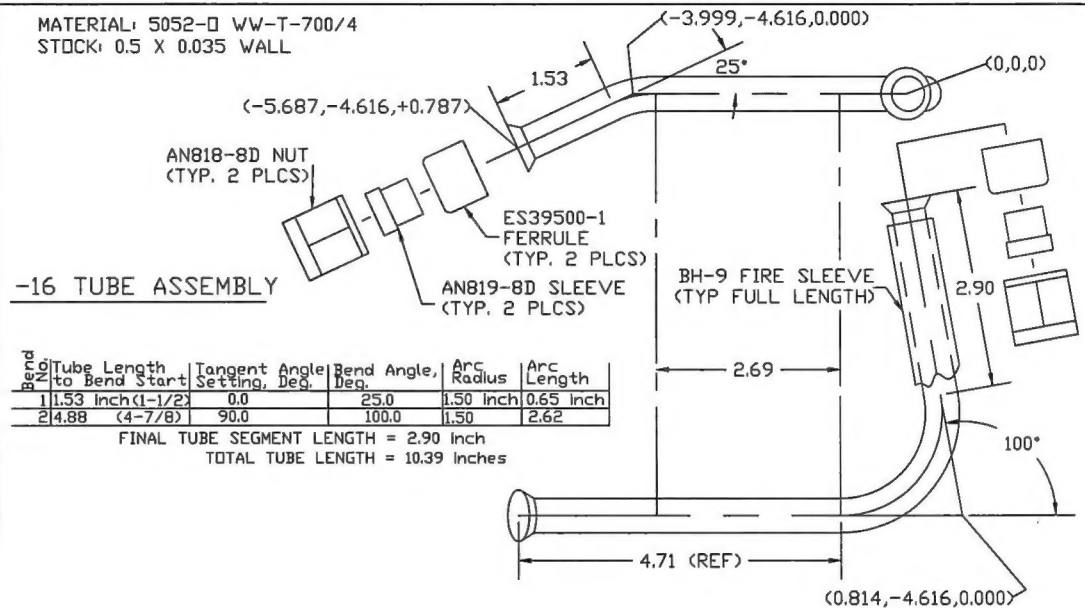
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Paravion® Technology Inc.		TITLE TUBE ASSEMBLY		DRAWING NO. S-5017		
DIMENSIONS IN INCHES TOLERANCES EXCEPT WHERE NOTED:		DRAWN BY KRG	APRVD. BY MR	CHK'D BY LS	DATE 12/10/99	REV K
.X = ± .1 .XX = ± .05 .XXX = ± .010		DO NOT SCALE DRAWING				SHEET 11 OF 13
ANGLES = ± 1°		© 2022 PARAVION TECH, INC. PARAVION IS A TRADEMARK OF PARAVION TECHNOLOGY, INC.				

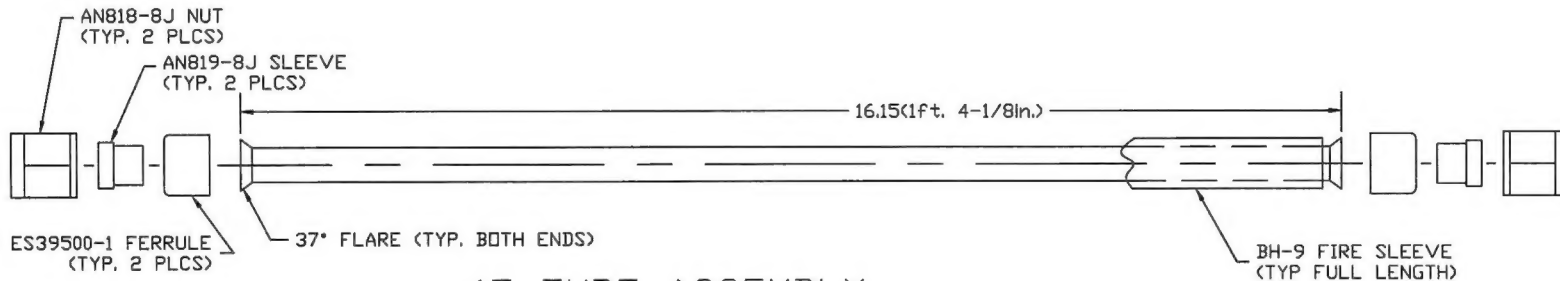
MATERIAL: 304 STAINLESS STEEL ASTM-A269-92  
STOCK: 0.5 X 0.035 WALL



MATERIAL: 5052-O WW-T-700/4  
STOCK: 0.5 X 0.035 WALL



MATERIAL: 304 STAINLESS STEEL ASTM-A269-92  
STOCK: 0.5 X 0.035 WALL



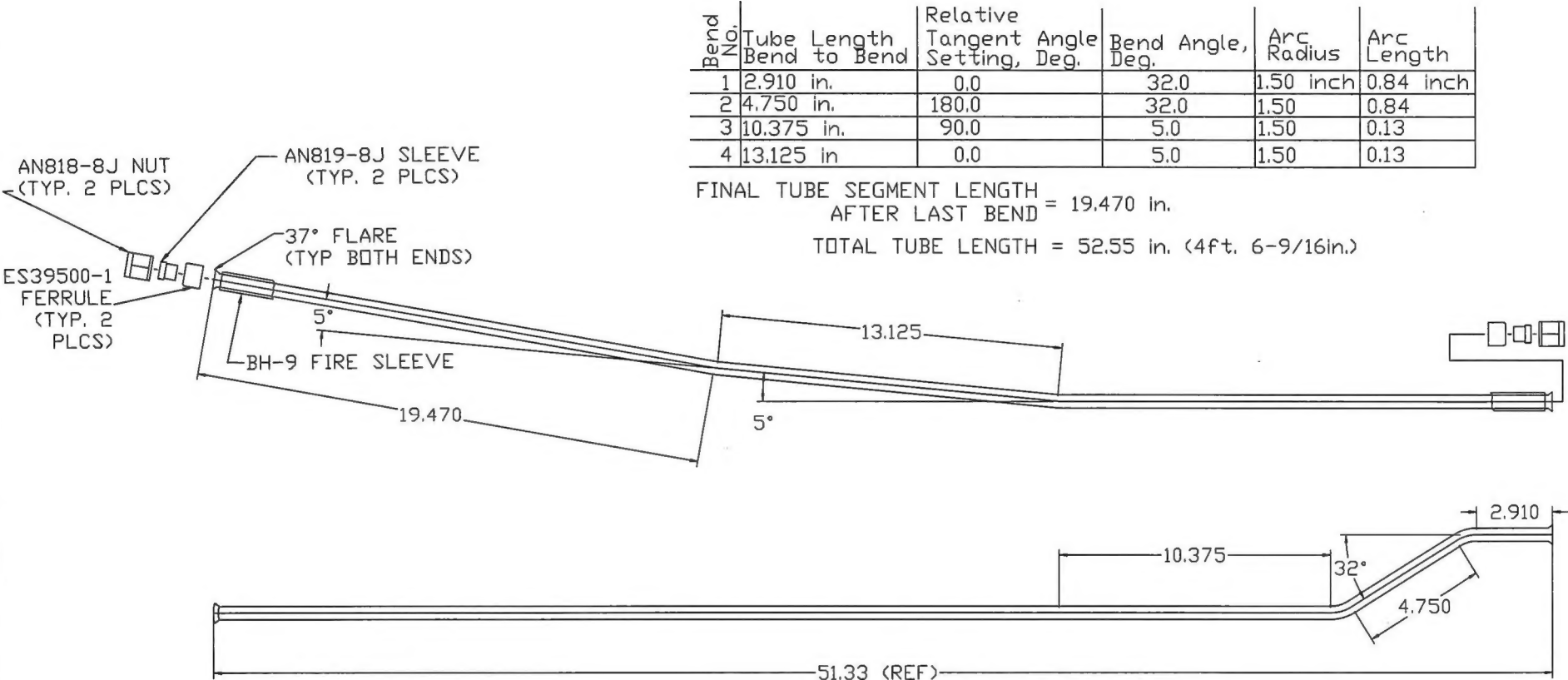
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Paravion® Inc. ✓Technology		TITLE TUBE ASSEMBLY			DRAWING NO. S-5017	
DIMENSIONS IN INCHES		DRAWN BY		APRVD. BY	CHK'D BY	DATE
TOLERANCES EXCEPT WHERE NOTED:		RHSM		REB	REB	11/26/96
.X = ± .1						
.XX = ± .05						
.XXX = ± .010						
ANGLES = ± 1°		DO NOT SCALE DRAWING				SHEET
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.X = ± .1  
.XX = ± .05  
.XXX = ± .010  
ANGLES = ± 1°

MATERIAL: 304 STAINLESS STEEL ASTM-A269-92  
STOCK: 0.5 X 0.035 WALL



-19 TUBE ASSEMBLY

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PROTO  
N/C

Paravion® Technology Inc.		TITLE TUBE ASSEMBLY		DRAWING NO. S-5017	
DIMENSIONS IN INCHES		DRAWN BY	APRVD. BY	CHK'D BY	DATE
TOLERANCES EXCEPT WHERE NOTED:		DT	ZA	LS	03/23/21
.X = ± .1		DO NOT SCALE DRAWING			
.XX = ± .05		SHEET			
.XXX = ± .010		13 OF 13			
ANGLES = ± 1°		© 2022 PARAVION TECH, INC. PARAVION IS A TRADEMARK OF PARAVION TECHNOLOGY, INC.			